



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/567,997

08/21/2006

Klaus Manfred Steinich

HAN815-130/06014

7488

24118 7590 10/08/2008
HEAD, JOHNSON & KACHIGIAN
228 W 17TH PLACE
TULSA, OK 74119

EXAMINER

WHITTINGTON, KENNETH

ART UNIT

PAPER NUMBER

2862

MAIL DATE

DELIVERY MODE

10/08/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/567,997	Applicant(s) STEINICH, KLAUS MANFRED	
	Examiner KENNETH J. WHITTINGTON	Art Unit 2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20, 22 and 26-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-20, 22 and 26-31 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 February 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/29/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The Amendment and documents filed September 12, 2008 have been entered and considered. In view of such Amendment, the objections to the Drawings, the Specification and the rejections under 35 USC 112 are withdrawn.

Terminal Disclaimer

The terminal disclaimers filed on September 12, 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US7329129 and App. Ser. No. 11/047430 have been reviewed and are accepted. The terminal disclaimers have been recorded. In view thereof, the Double Patenting rejections are withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Brunsch et al. (US2001/0017539).

Regarding claim 1, Brunsch discloses a position sensor according to the transit time principle of a mechanical-elastic wave, said sensor comprising:

Art Unit: 2862

a waveguide made of electrically conductive material (See Brunsch FIG. 3, item 26);

a detector coil in a detector range being arranged coaxially on the waveguide (See FIG. 3, item 42);

a position magnet moveable along the waveguide (See FIG. 1, item 18); and

a flux guide unit being assigned to said detector coil (See FIG. 3, item 52).

Regarding claim 2, Brunsch discloses said waveguide possesses a solid cross-section (See paragraph 0042).

Regarding claim 3, Brunsch discloses said waveguide has a solid cross section through an entire waveguide measurement range (See paragraph 0042).

Regarding claim 4, Brunsch discloses said detector coil is also a part of a detector arrangement just like a detector circuit (See FIGS. 1-3, item 42 and disclosure related thereto).

Regarding claim 5, Brunsch discloses said flux guide unit of said detector coil is assigned so that said flux guide unit simultaneously shields said detector coil against undesired external magnetic fields (See FIG. 3, item 52 and disclosure related thereto).

Regarding claim 6, Brunsch discloses a magnetic flux path of the magnetic flux enabled by said flux guide unit encloses windings of said detector coil at least once including said waveguide in the flux path (See FIG. 3, item 52 and disclosure related thereto).

Art Unit: 2862

Regarding claim 7, Brunsch discloses said magnetic flux path enabled by said flux guide unit surrounds the entire detector coil (See FIG. 3, item 52 and disclosure related thereto).

Regarding claim 31, Brunsch discloses a position sensor according to the transit time principle of a mechanical-elastic wave, said sensor comprising:

a waveguide made of electrically conductive material (See Brunsch FIG. 3, item 26);

a detector coil in a detector range being arranged coaxially on the waveguide (See FIG. 3, item 42);

a position magnet moveable along the waveguide (See FIG. 1, item 18); and

a flux guide and shielding unit being selectably formed and assigned to said detector coil to shield the detector coil from stray magnetic fields (See FIG. 3, item 52).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 8, 11-17, 20, 22 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Begin (US5680041) in view of Roters (US2511178).

Regarding claim 1, Begin teaches a position sensor according to the transit time principle of a mechanical-elastic wave, said sensor comprising:

Art Unit: 2862

a waveguide made of electrically conductive material (See Begin FIG. 1, item 16);

a detector coil in a detector range being arranged coaxially on the waveguide (See FIG. 1, item 36);

a position magnet moveable along the waveguide (See FIG. 1, item 58); and

a flux guide unit (See FIG. 1, item 40, note steel housing would provide some flux guiding properties).

However, Begin does not explicitly teach a magnetic flux unit assigned to the detector coil. Rotors teaches a magnetostrictive stress device comprising a magnetostrictive waveguide surrounded by a detection coil and a flux guide unit assigned to the detector coil (See Rotors FIG. 3a, note waveguide material 40, detector coil 41 and flux guide unit items 46-49). It would have been obvious to incorporate the shielding means of Rotors into the position sensor of Begin. One having ordinary skill in the art would do so to minimize the effects of extraneous magnetic fields (See Rotors col. 5, line 61 to col. 6, line 14).

Regarding claim 6, this combination teaches a magnetic flux path of the magnetic flux enabled by said flux guide unit encloses windings of said detector coil at least once including said waveguide in the flux path (See Rotors FIG. 3a, note items 46-49 around detector coil 41).

Regarding claim 8, this combination teaches an electrical return, at least in the axial range of the detector coil of the return, is coaxially arranged externally around the detector coil (See Begin FIG. 1, item 18).

Art Unit: 2862

Regarding claim 11, this combination teaches said flux guide unit encloses [[the]] said detector coil (See Roters FIG. 3a, note items 46-49 around detector coil 41).

Regarding claim 12, this combination teaches the detector can be constructed as a self-supporting coil (See Begin FIG. 1, note item 36 is self standing as alternate to the coil of Roters).

Regarding claim 13, this combination teaches said detector coil is wrapped on a coil shell in a longitudinal view (See Roters FIG. 3a, note item 42).

Regarding claim 14, this combination teaches said flux guide unit having an opening for said waveguide and an opening for electrical conductors connected to said detector completely encloses said detector coil (See Roters FIG. 3a, note items 46-49 around detector coil 41).

Regarding claim 15, this combination teaches said flux guide unit is primarily cylindrically shell-shaped with two opposing openings in the enclosed front side for entry and exit of said waveguide and a conductor opening for the passage of the electrical conductor for said detector coil, in which the conductor opening is found in a cylindrical surface area of said flux guide unit (See Roters FIG. 3a, note items 46-49 around detector coil 41).

Regarding claim 16, this combination teaches said cylindrical flux guide unit consists of a cup-shaped body with an open front side and a suitable cover on the frontal opening (See Roters FIG. 3a, note items 46-49 around detector coil 41).

Regarding claim 17, this combination teaches the cylindrical housing consists of two half-cylindrical shells (See Roters FIG. 3a, note items 48 and 49).

Regarding claim 20, this combination teaches a direct current is flowed through said waveguide (See Begin col. 4, lines 24-48).

Regarding claim 22, this combination teaches an axial direction of said detector coil corresponds with a longitudinal direction of said waveguide (See Begin FIG. 1, note waveguide 16 and detector coil 36).

Regarding claim 26, this combination teaches said magnetic flux path enabled by said flux guide unit surrounds said detector coil in at least one axial layer surrounding said detector coil (Note this is a property of the flux guide taught in Roters FIG. 3a, items 46-49).

Regarding claim 27, this combination teaches said flux guide unit encloses said detector coil along an axial layer of said detector coil (See Roters FIG. 3a, note items 46-49 around detector coil 41).

Regarding claim 28, this combination teaches said flux guide unit coaxially encloses said detector coil along an axial layer of said detector coil (See Roters FIG. 3a, note items 46-49 around detector coil 41).

Claims 18, 19, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Begin in view of Roters as applied to claim 14 above, and further in view of Redlich (US4864232). Regarding these claims, the noted combination teaches using a high permeability material for the flux guide (See Roters col. 5, line 61 to col. 6, line 14), but not the particular material or permeability ranges for the flux guide. Redlich teaches a flux guide for a coil comprising ferrite (See Redlich FIG. i, note coil 2 with

Art Unit: 2862

ferrite flux guide 5). It would have been obvious at the time the invention was made to use ferrite as the flux guide in the noted combination. One having ordinary skill in the art would do so because ferrite is such a highly permeable material as required in Roters which provides magnetic shielding for an enclosed coil. Regarding the permeability limitations of the claims, it is noted that ferrite has these recited properties.

Allowable Subject Matter

Claims 9 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not show or teach an electrical return having magnetic shielding while being conductive in addition to a flux guide unit as recited in the claims and in combination with the other features of the claims.

Response to Arguments

Applicant's arguments with respect to art rejections of the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KENNETH J. WHITTINGTON whose telephone number

Art Unit: 2862

is (571)272-2264. The examiner can normally be reached on Monday-Friday, 7:30am-4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Assouad can be reached on (571) 272-2210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kenneth J Whittington/
Primary Examiner, Art Unit 2862